

WHAT IS CLAIMED IS:

1. A comparing circuit comprising:

a differential circuit in which two signals are compared with each other, which are entered into a differential pair formed by a first transistor and a second transistor, the differential circuit having said differential pair and a load circuit of said differential pair;

phase adjusting means which operates said differential circuit as an operational amplifying circuit;

phase inverting means which inverts a phase of an output signal from said differential circuit;

feedback means which feeds back an output signal of said phase inverting means as a substrate biasing voltage of said first transistor in the case that said differential circuit is operated as the operational amplifying circuit by said phase adjusting means, and either same voltages or different voltages are applied to said first transistor and said second transistor of said differential pair respectively; and

holding means for holding said substrate biasing voltage of said first transistor in a predetermined time duration, which is fed back by said feedback means.

2. An offset compensating apparatus which compensates offset of an inverted signal and a non-inverted signal output from paired output ports of an electronic apparatus, comprising:

input means which inputs a predetermined signal into said electronic apparatus;

adjusting means operated in such a manner that a calculation is made of a difference between an inverted signal which is outputted from said electronic apparatus in correspondence with said predetermined input signal and a reference signal having no relationship with respect to said inverted signal, and said calculated difference value is held and also reflected onto said reference signal;

comparing means for conducting an error signal indicative of a difference between a non-inverted signal which is outputted from said electronic apparatus in correspondence with said predetermined signal and a signal produced by reflecting said held difference value onto said reference signal;

calculating means operated in such a manner that a value corresponding to said error signal is added to said predetermined signal, and the added signal is entered to said electronic apparatus by said input means;

storage means for storing therein a converged value of said error signal; and

compensating means for defining said converged value stored in said storage means as an offset compensating value of said electronic apparatus.

3. An offset compensating apparatus as claimed in claim 2, wherein said calculating means is a counter.

4. An offset compensating apparatus as claimed in claim 2, wherein said calculating means is an adding-and-subtracting

circuit.

5. An offset compensating apparatus as claimed in any one of claim 2 to claim 4, wherein said storage means stores thereinto a half value of the converged value of said error signal.

6. An offset compensating apparatus as claimed in any one of claim 2 to claim 4, wherein both said holding means and said comparing means correspond to the comparing circuit recited in Claim 1.

7. An offset compensating apparatus which compensates offset of an inverted signal and a non-inverted signal output from paired output ports of an electronic apparatus, comprising:  
15 input means for inputting a predetermined signal into said electronic apparatus;

first comparing means for conducting a first error signal indicative of a difference between an inverted signal which is outputted from said electronic apparatus in correspondence with said predetermined signal and a reference signal having no relationship with respect to said inverted signal;

first calculating means operated in such a manner that a value corresponding to said first error signal is added to said predetermined signal, and the added signal is entered to  
25 said electronic apparatus by said input means;

first storage means for storing thereinto a converged value of said first error signal;

second comparing means for conducting a second error signal indicative of a difference between a non-inverted signal which is outputted from said electronic apparatus in correspondence with said predetermined signal and a reference signal having  
5 no relationship with respect to said non-inverted signal;

second calculating means operated in such a manner that a value corresponding to said second error signal is added to said predetermined signal, and the added signal is entered to said electronic apparatus by said input means;

10 second storage means for storing thereinto a converged value of said second error signal; and

offset compensating means for calculating an offset compensating value of said electronic apparatus by employing said respective converged values stored in said first storage  
15 means and said second storage means.

8. An offset compensating apparatus as claimed in claim 7, wherein said offset compensating value is calculated by adding said converged value stored in said first storage means to said  
20 converged value stored in said second storage means.

9, An offset compensating apparatus as claimed in claim 7, wherein said converged value of said first error signal and said converged value of said second error signal are reduced  
25 by 1/2 respectively, and then, the 1/2-reduced converged values are stored into said first storage means and said second storage means, respectively.

10. An offset compensating apparatus as claimed in claim 7, wherein said first and second calculating means are counters.

5 11. An offset compensating apparatus as claimed in claim 7, wherein said first and second calculating means are adding-and-subtracting circuits.

12... An offset compensating apparatus as claimed in any...  
10 one of claim 2 to claim 11, wherein said electronic apparatus corresponds to a D/A (digital-to-analog) converting circuit.